

AIR WAR COLLEGE

AIR UNIVERSITY

Leveraging Joint Interoperability and
Interdependence for Airpower

By

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

12 February 2009

Report Documentation Page			Form Approved OMB No. 0704-0188		
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>					
1. REPORT DATE FEB 2009	2. REPORT TYPE N/A	3. DATES COVERED -			
4. TITLE AND SUBTITLE Leveraging Joint Interoperability and Interdependence for Airpower			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air War College, Maxwell Air Force Base, Alabama			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF: a. REPORT b. ABSTRACT c. THIS PAGE unclassified unclassified unclassified			17. LIMITATION OF ABSTRACT SAR	18. NUMBER OF PAGES 35	19a. NAME OF RESPONSIBLE PERSON

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Biography

Lt Col Shawn G. Silverman is currently a student at Air War College, Air University, Maxwell AFB, AL. Prior to attending Senior Developmental Education, he was Commander, 316th Operations Support Squadron, Andrews AFB, MD, where he provided aviation, airfield management, weather, transient and flight management support for Andrews AFB, joint interagency operations, critical contingency response capabilities, senior leaders and foreign heads of state in the National Capital Region.

Lt Col Silverman was commissioned through the Reserve Officer training Corps at Virginia Tech, VA in 1989 and entered the Air Force in November of that year. He has flown contingency missions in three theatres and has over 3100 flight hours and 160 combat hours. Lt Col Silverman's experience is extremely broad and has given him exposure to many aspects of the USAF, the US military, and other nations' militaries worldwide. Prior to his command he was Chief of Safety for the 89th AW on Andrews AFB. He moved to Andrews after serving at HQ AF as Program Element Monitor where he was responsible for programming funds, manpower, and equipment for three low density/high demand assets. In addition, he served as executive officer to the Air National Guard Chief of Plans, Program, and Manpower.

Before going to the Air Staff, he was assigned to HQ AF Special Operations Command (AFSOC) where he was stationed in the Republic of Korea, the United Kingdom, and Hurlburt Field, FL while flying missions worldwide to include, Korea, Bosnia, OSW and Afghanistan. His flying skills, exemplary leadership, and in-depth Special Operations experience contribute to his diverse background. He has assignment experience at Squadron, Wing, MAJCOM, and Air Staff levels and has served as an executive officer at the MAJCOM and Air Staff level.

Contents

Disclaimer.....	i
Biography.....	ii
Contents	iii
Introduction.....	1
History.....	1
What's at Stake.....	4
Distrust, Discord and Competition.....	5
The Futurist Failings.....	9
What the Issue is Not	12
Case Studies.....	14
Joint Cargo Aircraft.....	14
Unmanned Aircraft Systems.....	16
Recommendations.....	21
Conclusion.....	25
Bibliography.....	26
Notes.....	29

Chapter 1

Introduction

Since the signing of the Key West agreement, the Air Force has slowly diverged from its primary responsibility of supporting the land component. Over the years, growing mistrust and competition for resources among the services, left unchecked by the Department of Defense (DoD), has lead to the development of parochial stovepipes within the service components. Even in the face of the Goldwater-Nichols Act of 1986, which was designed to mandate joint interoperability and joint interdependence, service insular behavior has remained firmly ensconced as part of the way the Department of Defense conducts day-to-day operations. At the operational level, the Department of Defense has made significant strides in how they employ the force, but much work remains to be done at the service component (organize, train & equip) level, in order truly see Goldwater-Nichols to fruition. No better example of this dichotomy exists, than that of the DoD's key asymmetric weapon of airpower. In an environment of reduced resources, rapidly evolving threats, and dynamic operating environments, existing DoD airpower force structure is misaligned and does not provide adequate flexibility to support the broad spectrum of desired political outcomes.

History

It was fourteen years ago that the Pentagon last engaged in a top to bottom evaluation of it operates. Now, by the direction of Congress as part of the 2008 Defense Authorization Act (NDAA), the Department of Defense (DoD) is reevaluating these “Roles and Missions” in conjunction with the Quadrennial Defense Review (QDR). Included in the 2008 NDAA, is the requirement for the Secretary of Defense (SECDEF) to break down and brief Congress on the

core mission areas, competencies and capabilities of the armed forces¹. In a May 2008 press briefing, the DoD outlined seven main areas in which they will focus their efforts, however, among these, the only area Congress actually directed the DoD to study was whether “core mission areas are defined and functions are assigned so as to avoid unnecessary duplication of effort among the armed forces.”² While Secretary Gates has yet to fully define his core mission areas for the Department of Defense, the use of airpower, whether viewed as the Air Force does in terms of Global Vigilance, Global Reach, Global Power and Global Strike³, or as the Army does in terms of Deep Strike, Close Air Support and Persistent ISR⁴, or as simply as the Navy puts it in terms of “a robust aviation capacity including attack, utility and lift capabilities”⁵, will certainly be among those core competencies.

The Department of Defense’s approach to airpower has been a hotly and continuously debated topic since the 1947 National Security Act that established the Air Force and the subsequent 1948 Key West Agreement that attempted to delineate the roles and missions of the services. The rapid evolution of warfare during the First and Second World Wars had radically altered the spectrum of missions from those of previous wars. During this time, the Army began to exploit mechanization, maneuver and combined arms warfare as popularized by the German blitzkrieg; the Air Corps transformed itself from little more than a novelty prior to the First World War, to a significant fighting force capable of taking the fight to the enemy both at the front and in the deep into enemy territory; and the Navy moved from a battleship-centric fleet to a carrier-centric fleet capable of projecting power over a much larger area of operations and responding more swiftly to events.

As technologies rapidly advanced following the Second World War, the services, more than ever before, began to crowd each other’s domains. Airpower’s increased range and

mobility allowed it to venture far out to sea, naval airpower and missile technology enabled the fleet to project power far inland, and enhanced Army maneuver capacity demanded capabilities that mirrored both of the other services. The resultant duplication of effort has endured more as a function of mission overlap than actual redundant force structure. The services have continued to advance their own agendas, and the resultant growing mistrust in the ability of their sister service to adequately support them has widened the band of what the Key West agreement called “collateral functions” .

The most recent attempt to redefine the lines was made by the National Defense Authorization Act for fiscal year 1994, which established the independent Commission on Roles and Missions (CORM) to review the appropriateness of the current allocations of roles, missions and functions among the Armed Forces; evaluate and report on alternative allocations; and make recommendations for changes in the current definition and distribution of those roles, missions and functions. The overarching goal was for the CORM was to rethink these roles and missions with particular focus on the dramatically different security environment that emerged from the collapse of the Soviet Union and the end of the Cold War.

The results of the 1995 CORM report entitled *Directions for Defense* can be summed up simply as a missed opportunity. If the goal of the CORM was to provide a blueprint for restructuring the US military for new challenges, then it missed its mark. The future, as the CORM saw it “...will be marked by rapid change, diverse contingencies, limited budgets and a broad range of missions to support national security policies”⁶. However, instead of creating a vision for the future DoD, the CORM merely adopted the department’s current disposition and mandated a more joint approach to doctrine in the spirit of the Goldwater-Nichols Act. While a few of the CORM’s proposals for outsourcing, infrastructure reductions, acquisition reform and

consolidation of selected functions certainly had merit, these were mainly just cost savings. In essence the CORM recommended making the Armed Forces smaller and more efficient, rather than smaller and markedly different, as it was chartered to do. This was hardly the dramatic restructuring that was called for and needed in the post Cold War environment.

What's at Stake

To truly understand the complexity and dynamics involved in a task such as restructuring the roles and missions of the Armed Forces, one has to appreciate what is at stake. First and foremost is simply the security of the nation. While this paper will later discuss the failings of the futurists in their efforts to avoid fighting the “last war”, the military they envisioned and built, still has no peer on the world stage. There is no denying the combat effectiveness of today’s US Armed Forces, the more important question now is at what cost? When it comes to security of the nation, there is no doubt that we value the effectiveness of the military, or how well they accomplish the mission, over the efficiency of our military, or how cheaply they accomplish the mission. However, in an environment of constrained resources the DoD must learn to value efficacy, that is to say the combination of how well they accomplish the mission with as few resources as possible.

The background variables of this equation are far more complex in nature than those of the national security. They encompass political power and billions of dollars of expenditures in the military industrial complex that pass from the appropriators in Congress through the armed services into the hands of tens of thousands of defense contractors who employ a large portion of political constituencies and military retirees. The amount of funding that the components get from Congress is the lifeblood of the services and the battles to gain primacy over roles and

missions that drive where that funding goes are tumultuous endeavors. The equation becomes quite straightforward in the end: more missions equates to more funding.

Although the security of the nation is far too important to gamble on a thin line of resources, the amount of money outside of the entitled programs, that is to say not including Medicare and Social Security, in the presidential budget is quickly diminishing and the competition for that funding is becoming fiercer. Combined with a shrinking tax base and dramatic slowdown in the economy, the near term prospect of sustaining the DoD's budget appears rather unlikely.

With a shrinking budget looming as real possibility in the near future, the question that begs is, "How can we force the services to take a hard look at their roles and missions aiming to leverage joint interoperability and joint interdependence to and remain effective while gaining efficiencies?" The services are much too parochial to be objective about what missions they should pursue, OSD is too weak to enforce real change in the services, and Congress at large has too much vested political interest to drive substantial transformation within the DoD. It therefore falls to the select few of the House Armed Services Committee (HASC) and their Chairman, Ike Skelton (D-MO), in accordance with the 2008 NDAA to hold the services feet to the fire and affect measurable change to the roles and missions.

Distrust, Discord and Competition

The competition among the services for mission predates the establishment of an independent Air Force and the subsequent Key West agreement, but prior to those actions the lines of delineation were more self evident. Airpower was in its infancy and had a much more limited impact than demonstrated in the Second World War. The establishment of the Air Force,

and the resultant overlapping operating environments, changed the game considerably and the competition for mission (ergo resources) in a post World War II downsizing military became an entrenched identity.

Exacerbated by the vague language of the Key West agreement, the fear of diminished or non-existent support in critical mission sets by sister services eventually led the services to develop redundant and overlapping capabilities. For, example, growing doubt that sufficient resources would be available in both the Air Force and the Navy for close air support of the land component eventually led to the Army's development of the attack helicopter, and was central to the Marine Corp's fight to preserve its independent air wings.

Fueled by the Air Force's founding fathers emphasis on strategic bombing and deep strike operations, versus tactical support to ground units, a rift widened between the services. In Learning Large Lessons⁷, a RAND study about the evolving roles of ground and airpower, David E. Johnson describes the prevailing mistrust as having deep cultural and institutional origins. He argues that at the heart of the issue is the persistent reality that the services do not feel confident that they can rely absolutely on each other when the chips are down. It is for this reason that the services maintain redundant capabilities and develop service warfighting concepts that are largely self-reliant. He furthers argues that the lack of trust is most evident between the Army and the Air Force. The Army simply does not trust the Air Force to be there when it is needed, and the Air Force does not trust the Army to employ air power properly should they control it.

Johnson goes on to discuss how what he calls the “service way of doing things”⁸ is entrenched in the DoD. He argues that the very fact that these rivalries have persisted for more than twenty years after the passage of the Goldwater-Nichols Department of Defense

Reorganization Act is evidence of how deeply embedded these views are. Johnson's argument above makes it clearly evident that the Service Chiefs have not fully embraced the spirit of Goldwater-Nichols along with their role of force provider to the Combatant Commanders. The services seem to be missing the point that their service doctrine should be subservient to the Joint Forces Commanders' efforts to support national objectives.

In spite of the enormous advances made in airpower's speed, range, accuracy and lethality since the establishment of the Air Force, and the obvious overall value of airpower to today's warfighting effort, one disconcerting factor of Air Force culture has continued to persist since its inception. Exhibiting what appears to be a classic case of insecurity, the Air Force finds it important to continually assert its independence and parity with the Army and Navy. The latest version of Air Force Basic Doctrine⁹ is a good example of the manifestation of this insecurity.

Air and space power is a maneuver element in its own right, coequal with land and maritime power; as such, it is no longer merely a supporting force to surface combat. As a maneuver element, it can be supported by surface forces in attaining its assigned objectives.

The Air Force's continual assertion of its independence appears to beg for formal acceptance and validation from the other services for fear the Air Force would be relegated to simply a supporting role. Concurrently, the assertion that airpower could be the supported force appears perplexing and probably does more to enhance interservice rivalries than deter them. Further confusing the issue and fanning the flames of interservice rivalry are assertions such as the one described in Learning Large Lessons¹⁰. In referring to the 2003 version of the Air Force Doctrine Manual 2-1.2, Strategic Attack, Johnson, observes that the Air Force appears to be reverting to the "air power as the decisive war-winning instrument" argument of the past. In discussing Strategic Attack, the manual asserts that "...Operation DESERT STORM proved the

efficacy of strategic attack and the follow-on Operations of DELIBERATE FORCE, OEF, and OIF further refined the capability. In these operations, air and space assets conducting strategic attack proved able to deny enemy access to critical resources, defeat enemy strategies, and decisively influence enemy decisions to end hostilities on terms favorable to US interests.

Today's Air Force possesses an independent war-winning potential distinct from and complementary to its ability to decisively shape surface warfare." Again, all of this strains the language of warfighting and impedes efforts to attain a joint solution to achieving national strategic objectives.

Quite simply, although air power has clearly demonstrated its ability to make a significant contribution to major combat operations, it has not shown that it can independently obtain a strategic political end state. If it could, U.S. forces would not be in Kosovo, Afghanistan, and Iraq today. What's more, even if the Air Force could attain the strategic end independently of the other services, much less the whole of government, why would we chose to limit ourselves to just that capability? To its credit, the Air Force eventually backed off from the notion of completely "independent war-winning potential" changing the last sentence to read "...today's Air Force provides joint force commanders with enormous lethal and non-lethal capabilities that can contribute **directly** to the achievement of strategic objectives"¹¹, but one can clearly see the common thread in the parochial thinking.

There are many factors that have contributed to overlap, redundancy and excess capacity in missions throughout the DoD. Some even argue that some redundancy is a healthy thing and serves to foster competition among the services. Advocates of this posture often cite the ballistic missile program as a good outcome of this type of thinking. As all three services competed for this mission, their independent research and development led to three important capabilities; the

Air Force ICBM program, the Navy Polaris submarine based ballistic missile system, and the Army ballistic missile program that was eventually cancelled, but laid the ground work for future spacelift. It is safe to say that the competition among the services in this case produced highly desirable outcomes, but half a century later the environment is significantly different. The skyrocketing cost, long lead-time and existing complex, and overly cumbersome acquisition process make the research, development, training and fielding of new capabilities an enormous endeavor. Therefore, competition among the services and redundant capabilities come at such an exorbitant cost in terms of money and effort as to be mostly impracticable and unaffordable.

Although certainly not a comprehensive list of the many factors that have driven us to this dilemma, it is plainly evident that competition for the missions that beget resources, an institutional mistrust among the services, and divergent parochial thinking have been the major contributors. Overcoming this insular thinking will most certainly be a key task in improving efficacy and better posturing a fractured, redundant and inefficient airpower force structure to meet future taskings.

The Futurist Failings

"We know what we are, but we know not what we may become"

- William Shakespeare

The futurist movement, which garnered real popularity after the Second World War, probably reached its zenith in 1980 with the publishing of The Global 2000 Report and Toffler's The Third Wave.¹² In essence, Futurism is the science, art and practice of postulating possible, probable, and preferable futures. Futures studies seek to understand what actions are likely to continue, what is likely to change, and what is static or novel. Part of the discipline seeks an

understanding and systematic, pattern-based, understanding of past and present, and to determine the likelihood of future events and trends. But it has been almost three decades since publication of the Tofflers' work, and the complexity and rapidity with which change occurs in the world makes all forms of futurism risky and inaccurate.

Further complicating how the DoD and the services posture their force structure in terms of organization and quantity are the predictions of the future operating environment. Not only do the services concepts for the future tend to diverge from that of the Quadrennial Defense Review (QDR), but they also have a tendency to view the world as they want it to be, instead of the reality of what it is. In an article written for the Foreign Policy Research Institute¹³, Colonel H.R. McMaster argues that parochial agendas and narrow perspectives threaten to impede the effort to repair the intellectual foundation for defense modernization and adjust force development. McMaster further blasts leaders such as Major General Dunlap who advocate that the Iraq war is an ill-advised aberration and that we should make every attempt to avoid wars like those in Iraq and Afghanistan in favor of those that our military can be more effective. McMaster asserts that in Dunlap's construct, war could once again be made simple, fast, inexpensive, and efficient by divorcing military operations from policy or limiting the application of military force to targets capable of "projecting power." Instead of "colossal, boots on the ground efforts," the United States should rely on "air strikes to demolish enemy capabilities complemented by short-term, air-assisted raids and high-tech Air Force surveillance."¹⁴ Divorced from its political context, the problem of future war could be solved by America's "asymmetric advantages." The argument has appeal, in part, because it defines war as we might prefer it to be.

In contrast to futurist thinking, the lesson on how to understand the complexity and unpredictability of the environment lies within Clausewitz' remarkable trinity of passion, chance and reason. As Alan Beyerchen describes in his work regarding Clausewitz and non-linearity¹⁵ the overall pattern is clear. "War seen as a nonlinear phenomenon-as Clausewitz sees it-is inherently unpredictable by analytical means." He furthers that chance and complexity dominate simplicity in the real world and therefore no two wars are ever the same. In addition, Beyerchen proffers that in Clausewitz' estimation no war is guaranteed to remain structurally stable and, even for all of his analysis, no theory can provide the short-cuts necessary to allow us to skip ahead of the "running" of the actual war. Furthermore, no realistic assumptions offer a way to bypass these uncomfortable truths. The greatest benefit of understanding these truths is their ability to help us identify the blinders we impose on our thinking when we attempt to start thinking of war in a linear manner.

How we view the world and the future has a significant ramification on how we posture our force structure to meet those challenges. If we fail to understand that the environment we operate in is highly complex, continuously changing, and inordinately unpredictable vice the clean, simple, and predictable milieu we hope it to be, then we will continue to run down proverbial rabbit holes chasing force structure.

While less proactive than a futurist approach, complexity theory offers a significantly better approach to dealing with surprise, disruption and uncertainty. As Rejeski and Olsen¹⁶ describe it, in order to prepare for the unexpected we must continuously revise and update our situational awareness and work toward creating the long-term outcomes we envision. "Simply being more in tune to the world around you, is one of the best insurance policies against a surprise-filled future."¹⁷ In a Clausewitzian sense, instead of developing a strategy to *adapt* to

the future environment, we need to develop a strategy that links our policy and resources to *shape* the current environment into the future we envision.

If we then renounce futurist thinking as essentially too much of a gamble to bet the security of the nation on and instead favor the more grounded but less proactive complexity theory approach, how we posture our force becomes more self evident. Our force structure must remain flexible and adaptable to an innumerable number of missions and circumstances. The pinnacle of expertise and capability in any one area must be sacrificed in order to allow the force to rapidly adapt employ and sustain in unpredictable environments and supporting the possibility of several different outcomes.

What the Issue is Not

At the heart of the issue when it comes to roles and missions of the services, there are several important understandings that must be delineated in this debate. These understandings attempt to explain more about what the debate is *not* about than what the debate *is* about.

First, and foremost, the debate over roles and missions is not about the ability of one service or another to accomplish the mission by itself. Most often they cannot. The debate must be centered on how the total force can do more missions better and more cheaply than they have in the past. The Department of Defense cannot get distracted in our task looking at secondary or support functions which divert our attention away from the primary goal of redefining roles. In this case they must let function follow form and worry more about the mission that drives the support.

Secondly, the Department of Defense must eliminate the notion that the service components shouldn't specialize in their warfighting and support capabilities. For instance, the

Air Force specialization in defensive counter-air has enabled the Army to divest of a significant portion of its air defense artillery. As with any significant endeavor, the more you hope to accomplish with the task, the more generic your approach will necessarily become. There is a saying paraphrased from a former Columbia University President¹⁸ which states that the generalist knows more and more about less and less until he knows absolutely nothing about everything. If the Department of Defense hopes to maintain the asymmetric advantage we hold in airpower than we must avoid the trap of becoming the ultimate generalist.

If you accept that in and effort to do too much, you must avoid the pitfall of becoming the generalist, than the corollary must also be true. The Department of Defense must also be wary of becoming the ultimate specialist who knows more and more about less and less until he knows absolutely everything about almost nothing. Too much specialization and focus on one certain capability or mission for the services can radically deprecate the flexibility necessary in an unpredictable and highly complex environment.

The last understanding that must be understood is that this discussion of roles and missions is *not* about service components. This discussion is about who will organize, train and equip specific capabilities for use by the Combatant Commanders in support of national taskings. Service components and service component commanders exist in their Title 10 function to provide the Joint Force Commander with capabilities to fight wars, therefore the decision as to where the mission will bed down should be based on the component best able to organize, train, and equip those capabilities for presentation to the Combatant Commanders.

Chapter 2

Case Studies

The following case studies are examples of where the failings and mistrust among the service components have resulted in ineffectual, redundant or wasteful force structure or programs. These case studies support the argument that the service components have not fully bought into the spirit of Goldwater-Nichols and still think of themselves as warfighting components.

Joint Cargo Aircraft (JCA)

No current DoD program more clearly exemplifies the true discord and mistrust between the Army and the Air Force than that of the Joint Cargo Aircraft. Designed to support the Army's requirement for tactical airlift over "the last tactical mile"¹⁹, the Joint Cargo Aircraft case makes evident the divergence of the Air Force from its core responsibility to support the Army as delineated in the Key West agreement.

The emergence of the improvised explosive device (IED) threat in Afghanistan and Iraq as a threat to convoy operations combined with an increased focus on stability operations which spread the mission over a wider area of operations has led to the re-emergence of the need for the light tactical airlift mission. This mission had previously existed during the cold war as a method for moving small amounts of cargo and personnel around the European Theatre of Operations, but had been phased out as the number of bases in Europe was dramatically cut following the end of the Cold War.

The Air Force had envisioned fulfilling this requirement with medium lift C-130s doing multiple hops, but critical maintenance issues on an already aging fleet, coupled with high demand for increased strategic airlift capacity in the form of the C-17 led to the cancellation of the recapitalization program. In delaying the recapitalization of the medium lift fleet through the C-130J, the Air Force chose to pursue higher priority funding requirements such as the F-22, JSF, and C-17. Additionally, in the Army's view, the C-130 did not fit the requirement as its ability to operate in the requested environment, a 2000 foot runway and an unprepared surface²⁰, was questionable at best.

The Army's growing impatience with the Air Force ability to support the JCA requirement along with a significant lobby and pressure from the Army National Guard led, in March of 2005, to the eventual approval to purchase of, what the Army termed at the time, 33 Future Cargo Aircraft (FCA). It wasn't until later that year that the Air Force showed real interest in this capability. Then Air Force Chief of Staff was quoted as saying "you don't need to go out and buy yourself an Air Force -- we've got one"²¹ In September of that same year, the Air Force expressed interest in developing a small intra-theatre airlift capability of its own, eventually asking for 150 Light Cargo Aircraft or LCAs.

The DoD did notice the similarities in the programs and in December of 2005, merged them into a single program under the title of Joint Cargo Aircraft and inexplicably named the Army as the lead for the program. In June of 2006 the two services signed an agreement to jointly develop the command and control and support functions for the aircraft. The L-3 Communications C-27J won the selection competition and a contract for 78 C-27Js (54 Army, 24 Air Force) at a cost of just over \$2 billion was awarded.

There is some allowance in joint doctrine for each service component to maintain a small fleet of aircraft to meet service-specific needs.²² In the JCA MOA that was signed between the services, the Army dictates that it will use the JCA in “direct support” of its ground operations by providing “on-demand transport of time-sensitive/mission-critical cargo and key personnel to forward deployed Army units operating in a Joint Operations Area.”²³ The key to the Army approach is that it primarily views this capability as on-call airlift *directly tied to the tactical needs of ground commanders.*

By contrast, the Air Force, which in accordance with the Key West agreement, is responsible for organizing, training, and equipping to perform airlift, views the mission of the Joint Cargo Aircraft, including delivery of time-sensitive/mission-critical Army cargo, as its responsibility. The aim of Air Force is to use the JCA to provide “general support” airlift for all theatre users. The joint publications define general support as “the airlift service provided on a common basis for all DOD agencies and, as authorized, for other agencies of the U.S. Government” and assigns mission responsibility to U.S. Transportation Command.²⁴ The key difference in thought process between the Army and the Air Force is that under this construct, *the Air Force allocates available aircraft to all users in accordance with a Joint Force Commander’s (JFC’s) priorities.* The main goal of this approach is the most efficient and effective use of every aircraft/sortie.

This microcosm of the relationship between the two services is the heart of the matter and, as is plainly derived from the above two paragraphs, command and control of these forces is the nucleus of the argument. The Army may argue that they are responsible for sustaining their force and should be able to chose and control the vehicle for doing so. The Air Force would argue that creating “two air forces” is inefficient and that they are capable of supporting

sustainment at both the strategic and tactical levels. Clearly though, the most passionate argument comes over who has control of the execution.

Unmanned Aircraft Systems

Yet another program where the DoD has failed to adequately embrace the spirit of the Goldwater-Nichols act is that of the Unmanned Aircraft System (UAS). In FY 2000, the DoD inventory of unmanned systems consisted of fifty aircraft. By May of 2008, that number had grown to six thousand and was expanding. The disparate and seemingly haphazard approach the DoD has taken toward the UAS has failed to provide for a common, joint, and effective UAS program and to address challenges such as the development and acquisition of the UAS and the integration of these force multipliers into combat operations.

The DOD categorizes UAS into three main classes—man-portable, tactical, and theater. Man-portable UAS are small, self-contained, and easily moveable and are generally used to support small ground combat teams in the field. Tactical UAS are slightly larger systems, generally used to support operational units at the tactical level of command, such as a battalion or brigade. Theater UAS are controlled by the Joint Forces Air Component Commander (JFACC) and are generally used to support the combatant commander's ISR priorities, but in certain circumstances, can be assigned to support tactical operations.

Many of the systems currently being employed or planned for are part of formal DOD acquisition programs. UAS can be government owned and operated, government owned and contractor operated, or contractor owned and operated. Although every military service and U.S. Special Operations Command operates several types of UAS, each does not currently operate a UAS in every UAS class. Table 1 below provides a summary of UAS currently operated by

DOD components and contractors and of UAS that are not yet fielded but appear in DOD's acquisition plans.

Table 1: DOD Components' Current and Planned UAS

DOD component	UAS category	Current DOD UAS	Contractor-operated UAS	Planned DOD UAS
Army	Man-portable	<ul style="list-style-type: none"> • Micro Air Vehicle • Raven 	<ul style="list-style-type: none"> • Micro Air Vehicle 	None
	Tactical	<ul style="list-style-type: none"> • Hunter • Shadow 	<ul style="list-style-type: none"> • Hunter • I-Gnat • Warrior-Alpha 	<ul style="list-style-type: none"> • Sky Warrior • Fire Scout
	Theater	None	None	None
Air Force	Man-portable	<ul style="list-style-type: none"> • Battlefield Air Targeting Micro Air Vehicle • Raven 	None	None
	Tactical	None	Scan Eagle	None
	Theater	<ul style="list-style-type: none"> • Predator • Reaper • Global Hawk 	None	None
Navy	Man-portable	<ul style="list-style-type: none"> • Gas Micro Air Vehicle • Raven 	None	<ul style="list-style-type: none"> • Wasp Micro Air Vehicle

The March 2005 testimony by the Government Accountability Office (GAO) to the House Armed Services Subcommittee on Tactical Air and Land Forces most likely played a role in facilitating the OSD's creation of two management groups to help facilitate the UAS program. The testimony criticized DoD for the lack of an "...oversight body to guide UAV development efforts and related investment decisions," which ultimately does not allow DoD "...to make sound program decisions or establish funding priorities."²⁵ From the testimony, it would appear that the GAO envisioned a central authority or body to satisfy this role. In what appeared to be a move toward further management restructuring, reports in the spring of 2005 indicated that OSD was considering appointing one of the services as the executive agent and coordinator for UAV programs, a position for which Air Force actively petitioned. However, in late June 2005, the JROC announced that DoD had abandoned the notion of an executive agent in favor of two smaller organizations focusing on interoperability. The first, entitled the Joint UAV Overarching

Integrated Product Team (OIPT), provides a forum for identification and problem solving of major interoperability and standardization issues between the services. In compliment, the Joint UAV Center of Excellence coordinates with the OIPT to improve interoperability and enhance UAV applications through the examination of sensor technologies, UAV intelligence collection assets, system technologies, training and tactics.

The constant organizational changes have led to mounting concern over UAV management. These fluctuations suggest that DoD has not yet come to grips with a final UAV development and oversight structure to meet the needs of the military. Instead, the recent establishment of the Joint UAV OIPT and Joint UAV COE have lead many to believe that these bodies are not a final solution, but a step in the right direction. However, DoD's intended purpose for this oversight body may differ from the GAO's concept. Air Force Major General Stephen M. Goldfein, commander of the Air Warfare Center at Nellis Air Force Base, NV, described the UAV Center of Excellence as a "...one-stop shop that takes a look at all the possibilities for common operating systems and the best ways to use UAVs"²⁶. If the intent of these bodies are simply to serve as 'one-stop' checkpoints in the UAV development process instead of the centralized monitoring and oversight authority envisioned by the GAO, then questions may arise over where the final management authority resides — within these bodies or with each of the services?

The DOD has not developed a comprehensive and integrated strategic plan to align departmental and service efforts to improve the management and operational use of UAS with long-term implementation goals, priorities, time lines, and other departmental planning efforts. In attempt to provide some form of planning guidance, DOD issued a UAS Roadmap in 2007 to guide the development of unmanned systems to meet joint warfighter needs, but the Roadmap

lacks key elements of a sound strategic plan, such as a focus on how to accomplish DOD’s goals and objectives for UAS, milestones to track progress, identification of performance gaps, and clear linkages between proposed UAS investments and long-term planning goals.

It seems evident then that OSD, the Joint Requirements Oversight Council (JROC) and the services have failed to truly accept what is intended in both the Goldwater-Nichols Act and Joint Doctrine. In discussing joint operations and capabilities that cross service boundaries, Joint Publication 1 *Doctrine for the Armed Forces of the United States* states, “Fundamentally, joint forces require high levels of interoperability and systems that are “born joint” (i.e., conceptualized and designed with joint architectures and acquisition strategies). This level of interoperability ensures that technical, doctrinal, and cultural barriers do not limit the ability of JFCs to achieve objectives.”²⁷

Chapter 3

Recommendations

Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius—and a lot of courage—to move in the opposite direction.

- E. F. Schumacker

As the DoD and the House Armed Services Committee move forward in evaluating the Armed Services roles and missions, they must make every effort to maximize the efficacy of the force structure by simplifying the approach to delineating roles and missions. In the spirit of Ockham's razor which posits that given two competing theories, the simplest explanation is to be preferred,²⁸ the DoD should move toward assigning roles and missions to the services based on the simplistic approach to the domain in which they employ. That is to say, the forces that employ on land should belong to the Army; in the air, Air Force and at sea, the Navy. Fundamentally, this would allow the services to provide unity of effort in acquisition programs, focus effort on core tasks and capabilities, and enhance the joint interoperability envisioned by the Goldwater-Nichols Act and codified in Joint Doctrine.

In terms of airpower, the domain is defined as air and space. Certainly, a strong argument can be made, and has been made in the past, in support of a separate domain for space, but as the service components do not currently have a “Space Force”, we will include these in the domain of airpower. If, in the future, Congress and the President want to take a true domain-centric approach to how the DoD is structured, then strong arguments most certainly could be made for separating space from that of airpower, as well as for cyberspace and the establishment

of a cyber component to employ in that domain and provide joint interoperability to the force. However, this paper will limit the recommendation to the existing Army, Navy, Air Force, and Marine service components.

Utilizing this simplistic approach of defining service roles and missions by domain would align, Army, Navy, and Marine airpower force structure under the Air Force. Conversely, missions such as Air Base Defense and arguably a significant portion of the support functions would transfer over to the Army. The parochial thinking that would need to be overcome in execution of this realignment would, undoubtedly, be enormous, but the eventual benefits gained in efficacy, cost savings and interoperability would far outweigh pain and effort required to make it happen. It is quite easy to dismiss this approach as being unrealistic, or “too difficult”, but the only way to make substantial impact on how we act jointly and simultaneously streamline the DoD airpower force structure is to introduce a significant shock into the system. This paper discusses some of the benefits and hurdles that would need to be overcome in order for this approach to be realized, but in the end, this is the approach that was first intended when the Air Force was established, but was eventually watered down by service component infighting.

One of the most obvious benefits of consolidating airpower force structure under one service is that of efficiency. Instead of a large force of disparate types of aircraft, the Air Force could unify acquisition efforts, significantly reduce logistical support and maintenance tail, and streamline training support requirements. The case study with regards to the Joint Cargo Aircraft is an example of where the DoD almost got to the right solution but fell short in the end. While they were able move the services (Army and Air Force) to a joint program, they fell short of putting the entire program in the same service. In failing to do so, OSD chose to placate the service components instead of forcing the Air Force to fulfill its primary mission of supporting

the other services. From the beginning, this program should have been tasked to the Air Force in a supporting role for the other service components. In the end, the Department of Defense will sacrifice the efficiency made possible by unity of effort.

While multiple examples of the potential benefits in terms of cost savings can be presented, one of the most important benefits that would be gained through a domain driven approach is that of interoperability. By parsing the roles and missions of the services in this manner, it drives them to be more, and act more, interdependent. As the services continue to foster, grow and practice interdependence in day-to-day operations their efforts will translate to better joint operations when deployed. The habitual relationship and “common language” that will emerge from the reliance on service interdependence will help breakdown stovepipes, broaden the lines of communication, and better prepare us to execute as a whole. As compared to those of streamlining acquisition and force structure, the benefits of attaining true joint interdependence are difficult to measure, but one can certainly argue that by doing so, we can not only be more efficient, but more also more effective.

The arguments against a roles and mission split based on domain are largely emotional, often based on strong paradigms of how we operate, and enhanced by historical mistrust and competition for resources. The other services would argue the importance of maintaining their organic capability and that by transferring their airpower to the Air Force they would sacrifice flexibility and lose control over those forces. However, transferring the forces does not prohibit the Combatant Commanders’ prerogative to partition the forces as they see appropriate. The main focus of a domain oriented approach is to better organize, train, and equip the force within the given resources and to promote interoperability and would have little bearing on how the JFC desires to task organize his forces for combat.

Further complicating the issue of force structure “ownership” is the method in which funding is given to the services. Under the current construct, giving up force structure would also entail transfer of resources or what the Office of Management and Budget (OMB) calls Total Obligation Authority (TOA). Transfer of TOA to another component, by its very nature, reduces the flexibility of service in how it delegates its assigned resources. Congress and OSD will need to address this approach to resourcing the components with an eye toward centralizing acquisition funding at the OSD. Essentially, this means that the services would be given the funding they need for day-to-day operations, but all money used for the development and acquisition of new weapons systems would remain at the OSD level. The aim of this effort would be to ensure those programs are interoperable and meet cross-service requirements. If we break the paradigm of how the services are resourced, we can eliminate a major roadblock to a thorough Roles and Missions review using a domain concept.

The barriers brought about by historical mistrust among the service components are also significant obstacles to this strategic approach. We are beginning to see evidence of some of these barriers being broken, but those are hard fought battles and take an inordinate amount of effort to overcome. The Army’s and Marine Corps’ ability to leave most of its organic field artillery behind for operations in Afghanistan and Iraq, is a paradigm shift brought about by the confidence of the Army and the Marine Corps in the Air Force and Marine airpower’s ability to deliver reliable Close Air Support (CAS) in a timely manner. In essence it was, and continues to be, an issue of trust. Building trust requires a habitual relationship and historical reliability that will only be attained through time and with Air Force continued focus on support for the ground component.

Conclusion

Our doubts are traitors, and make us lose the good we oft might win by fearing to attempt.

- William Shakespeare

The 2008 NDAA, in response to the House Armed Services Committee's requirement for the Department of Defense to evaluate how its Roles and Missions are structured as part of the Quadrennial Defense Review, has opened a window of opportunity for OSD to make significant and sweeping changes to how the service components provide forces to the Combatant Commanders. The Key West agreement and the Goldwater-Nichols Act envisioned a truly joint effort from the service components with a focus on seamless interoperability, however, the parochial attitudes of the service components, fights over missions that beget resources, and growing distrust among the components has created a fractured, redundant and inefficient system in an environment of diminishing resources.

A domain oriented approach to delineating Roles and Missions among the service components would need to overcome strong, paradigm driven, opposition in order to be successful, but is just the type of shock that the system needs to enable significant change. The simple elegance of a domain driven method would clarify the seams between the services, streamline acquisition and logistics, and demand better interoperability between the services. The arguments against defining roles and missions by domain are predominately emotional issues of historical trust and unfounded worries about lack of flexibility, but these can easily be overcome by building habitual relationships, and day-to-day reliance on interoperability.

Achieving this goal requires the services shrug off parochial ties and break from the idea of “ownership” when it comes to resources and force structure to take up the greater good. The service components must also come to understand that they are not the warfighters and merely serve to organize, train and equip forces to present to the Combatant Commanders. Additionally, in the arena of airpower, the Air Force must come to grips with its role as the supporting force on almost every occasion and understand the value of that mission. In the end, if OSD and Congress have the strength and political will to reshape how the services are structured, the nation could realize enormous benefits both in the fiscal environment and on the battlefield.

Bibliography

Binnendijk, H. a. (1995-1996, Winter). Tuning the Instruments of National Power. . *Joint Force Quarterly No 10* , pp. 82-88 .

Binnendijk, H. e. (2002). *Transforming America's Military*. Washington: National Defense University Press.

Bolkcom, C. (2001). *Air Force Transformation: Background and Issues for Congress*. Washington: Congressional Reasearch Service; Library of Congress.

Cordesman, A. H., & Kaeser, H. U. (2008). *America's Self Destroying Airpower*. Center for Strategic & International Studies, Burke Chair in Strategy. Washington, DC: CSIS.

Correll, J. T. (1994, January 2). Another Shot at Roles and Missions. *Air Force Magazine* , p. 77.

Correll, J. T. (1995, August 17). Surprise Package on Roles and Missions. *Air Force Magazine* , p. 78.

Crowe, W. J. (1989). *Roles and Functions of the Armed Forces: A Report to the Secretary of Defense*. Washington: Office of the Chairman, The Joint Chiefs of Staff.

Curtin, N. P., & Francis, P. L. (2004). *Unmanned Aerial Vehicles: Major Management Issues Facing DOD's Development and Fielding Efforts*. Washington, DC: GAO.

Department of Defense. (2007, May 14). Doctrine for the Armed Forces of the United States. *Joint Pub 1* . Washington, DC, USA: DoD.

Department of Defense. (1997). *Report of the Quadrennial Defense Review*. Washington: DoD.

Deptula, D. A. (2001, 15 Fall). Air Force Transformation: Past, Present, and Future. *Aerospace Power Journal* , pp. 85-91.

Diaz, A. A. (2000, 11 No. 3). Resourcing for Defense: Solving the Roles and Missions Puzzle. . *Defence and Peace Economics* , pp. 231-269.

East, J. a. (1995). *Support to the Commission on Roles and Missions of the Armed Forces: Operational Support Airlift*. Alexandria, VA: Institute for Defense Analyses.

Geer, H., & Bolkcom, C. (2005). *Unmanned Aerial Vehicles: Background and Issues for Congress*. Washington, DC: Congressional Research Service; The Library of Congress.

Gordon, J., Wilson, P. L., Boraz, S., & Lee, G. T. (2006). *Leveraging America's Aircraft Carrier Capabilities: Exploring New Combat and Noncombat Roles and Missions for the U.S. Carrier Fleet*. Arlington, VA: Rand Corporation.

Hess, A. (2008). *Military Airlift: The Joint Cargo Aircraft Program*. Washington, DC: Congressional Research Service; Library of Congress.

Hetherington, J. R. (2008). *Roles and Missions: Are We Doing it Right?* Carlisle Barracks, PA: US Army War College.

Howey, A. W. (1993). *Four U.S. "Air Forces": Overlap and Alternatives*. . Washington: Congressional Research Service; Library of Congress.

Johnson, D. E. (2007). *Learning Large Lessons: The Evolving Roles of Ground Power and Air Power in the Post-Cold War Era*. Arlington, VA: Rand Corporation.

Kent, G. A. (1998). *Defining the Role of Airpower in Joint Missions*. Santa Monica, CA: Rand Corporation.

Khalilzad, Z. a. (2002). *Strategic Appraisal: United States Air and Space Power in the 21st Century*. Santa Monica, CA: Rand Corporation.

Krepinevich, A. F. (2007). *Defense Roles, Missions, and Requirements*. Washington, DC: Center for Strategic and Budgetary Assessments.

Krepinevich, A. F. (1995). *Restructuring for A New Era: Framing the Roles and Missions Debate*. Washington, DC: Defense Budget Project.

Lussier, F. M. (1994). *Options for Reconfiguring Service Roles and Missions*. Washington: Congressional Budget Office.

McMaster, H. (2008). Learning from Contemporary Conflicts to Prepare for Future War. *Orbis* .

McPeak, M. A. (2004, June 8). Roles and Missions: Defining the Basics of Transformation. . *Armed Forces Journal* , p. 141.

McPeak, M. A. (1995). *Selected Works: 1990-1994*. Maxwell AFB, AL: Air University Press.

O'Rourke, R. (2006). *Unmanned Vehicles for U.S. Naval Forces: Background and Issues for Congress*. Washington: Congressional Research Service; The Library of Congress.

Pickup, S. L. (2008). *Unmanned Aircraft Systems: Additional Actions Needed to Improve Management and Integration of DOD Efforts to Support Warfighter Needs*. Washington, DC: GAO.

Pickup, S., & Sullivan, M. J. (2005). *Unmanned Aerial Vehicles: Improved Strategic and Acquisition Planning Can Help Address Emerging Challenges*. Washington, DC: GAO.

Roche, J. G. (2001-2002, Fall-Winter No.29). Transforming the Air Force. . *Joint Force Quarterly* , pp. 9-14.

Secretary of the Air Force. (2008). *Air Force Posture Statement*. Air Force, Department of Defense. Washington: USAF.

Secretary of the Navy. (2007). *United States Navy Posture Statement*. Washington, DC: DoD.

(2008). *Sullivan, Michael J.* Washington, DC: GAO.

Teets, P. B. (2004). *Statement of the Honorable Peter B. Teets, Undersecretary of the Air Force, Space, before the House Armed Services Committee, Strategic Forces Subcommittee, United States House of Representatives on July 22, 2004.*

Thomason, J. S. (1995). *Evolving Service Roles in Presence Missions*. Alexandria: Institute for Defense Analyses.

Trest, W. A. (1998). *Air Force Roles and Missions: A History*. Washington: Air Force History and Museums Program.

United States Congress. (2008, January 3). National Defense Authorization Act for Fiscal Year 2008. *HR 4986* . Washington, DC, United States.

War Department. (1943, July 21). Command and Employment of Airpower. *FM 100-20* . Washington, DC, USA: United Staes Government Printing Office.

Watson, F. D. (1996, January 72). Thinking Outside the Box on Roles and Missions. *Officer* , pp. 26-28.

Notes

¹ House, *National Defense Authorization Act for Fiscal Year 2008*, 110th Congress, Sec. Sess., 2008, HR 4986, Sec E

² Ibid

³ The Honorable Michael W. Wynne, Secretary of the United States Air Force, "Air Force Posture Statement 2008" unclassified testimony before the House Armed Services Committee, Washington, D.C., 29 Feb 2008, 3.

⁴ The Honorable Pete Geren, Secretary of the United States Army, "Army Posture Statement 2008" unclassified testimony before the House Armed Services Committee, Washington, D.C., 26 Feb 2008, 3.

⁵ The Honorable Donald C. Winter, Secretary of the United States Navy, "The Secretary of the Navy's 2008 Posture Statement" unclassified testimony before the House Armed Services Committee, Washington, D.C., 1 Mar 2007, 11.

⁶ *Directions for Defense*, Report to Congress, the secretary of defense, and the chairman of the Joint Chiefs of Staff, Washington, D.C., Roles and Missions Commission of the Armed Forces, 24 May 1995

⁷ Johnson, David E., *Learning Large Lessons*, USAF Study, Strategic Planning Division, Directorate of Plans, Washington, D.C., RAND Corporation, 2007, 197

⁸ Ibid.

⁹ Air Force Doctrine Document (AFDD) 1, Air Force Basic Doctrine, 17 November 2003, 16

¹⁰ Learning Large Lessons pgs 191-192

¹¹ Air Force Doctrine Document (AFDD) 2-1.2, Strategic Attack, 12 Jun 2007, 1-2

¹² Toffler, Alvin, *The Third Wave*, New York, Bantam Books, 1980. Probably the seminal and most recent great predictive work of futurism, The Third Wave had profound impact in predicting the Information Revolution. To quote Newt Gingrich, former US Speaker of the House of Representatives, "Alvin and Heidi Toffler have given us the key to viewing current disarray within the positive framework of a dynamic, exciting future... the Tofflers correctly understand the development and distribution of information that has become the central productivity and power activity of the human."

¹³ McMaster, H.R., Learning from Contemporary Conflicts to Prepare for Future War, *Foreign Policy Research Institute*, Oct 2008

¹⁴ Ibid

¹⁵ Beyerchen, Alan "Clausewitz, Nonlinearity and the Unpredictability of War," *International Security*, 17:3 (Winter, 1992), 59-90

¹⁶ Rejeski, David and Olson, Robert L., "Has Futurism Failed?", *The Wilson Quarterly*, Winter 2006, 20

¹⁷ Ibid

¹⁸ Nicholas Murray Butler (1862-1947, President of Columbia University, commencement address at Columbia University - attributed

¹⁹ Gen. Richard A. Cody (USA) and Gen. John W. Corley (USAF), Memorandum of Agreement, "Way Ahead for the Convergence of the Army Future Cargo Aircraft (FCA) and the Air Force Light Cargo Aircraft (LCA) Programs," June 20, 20062-3. Henceforth JCA MOA

²⁰ Martin Matishak, "AFMC Chief: Army, Air Force Reach Accord on Technical Data for JCA,"

Inside the Army, July 3, 2006, 2.

²¹ John T. Bennett, “USAF Chief: Small Fixed-Wing Aircraft Needed for Intra-Theater Lift,” Inside the Air Force, September 2, 2005, 2.

²² Joint Publication 1-02: DOD Dictionary of Military and Associated Terms, April 12, 2001, as amended through October 17, 2007, 488.

²³ JCA MOA, 2-3

²⁴ Joint Publication 1-02: DOD Dictionary of Military and Associated Terms, April 12, 2001, as amended through October 17, 2007, 106

²⁵ Government Accountability Office (GAO), Report B-298626, November 21, 2006, p. 1, and GAO Reports B-298626.2, B298626.3, September 27, 2007, 1

²⁶ David A. Fulghum. “UAVs, Views From Nellis.”, *Aviation Week & Space Technology*. September 26, 2005, 56.

²⁷ Joint Publication 1: Doctrine for the Armed Forces of the United States, May 14, 2007 , I-2

²⁸ <http://www.britannica.com/EBchecked/topic/424706/Ockhams-razor>